

WHAT IS CLAIMED IS:

1. A method for managing the rebuild commands directed to a drive, the drive having a non-volatile memory and a cache;
5 enabling the cache of the drive;
recording in a first memory location the rebuild commands directed to the drive; and
periodically causing the drive to flush the cached data associated with the rebuild commands to its non-volatile memory;
wherein the each command directed to drive is at least temporarily recorded in the
10 memory location during the period that the cache of the drive is enabled.

2 The method for managing the rebuild commands directed to a drive of claim 1, further comprising the step of disabling the cache of the drive following the successful rebuild of the drive.

15 3. The method for managing the rebuild commands directed to a drive of claim 2, wherein the step of causing the drive to flush the cached data to its non-volatile memory comprises the steps of:

maintaining a count of the number of commands stored in the first memory location;
and

20 causing the drive to flush the data to its non-volatile memory when the count of the number of commands stored in the first memory location reaches a predetermined threshold.

4. The method for managing the rebuild commands directed to a drive of claim 3, further comprising the step of clearing the first memory location and the count following the successful
25 flushing of data from the cache to the non-volatile memory.

5. A storage array, comprising:
multiple drives, wherein each drive comprises,
non-volatile storage media for storing data; and
a write cache for caching data associated with write commands received by

5 the drive; and

drive controllers, wherein each drive controller is associated with and coupled to a
drive of the storage array, wherein each drive controller comprises a first memory, wherein the first
memory is operable to store a history of write commands transmitted from each drive controller to
its associated drive; and

10 wherein each drive controller is operable to manage the rebuild of its associated drive
by:

enabling the write cache for the drive;
recording each write command sent to the drive in the first memory;
periodically causing the drive to flush the data in the write cache of the drive;

15 and

disabling the write cache for the drive upon the successful completion of the
rebuild of the drive.

6. The storage array of claim 5, wherein each drive controller is operable to clear its first
20 memory following the indication of the successful flushing of the data in the write cache of the
associated drive.

7. The storage array of claim 5, wherein each drive controller comprises a second
memory for recording the number of commands stored in the first memory.

25

8. The storage array of claim 7, wherein each drive controller is operable to cause its associated drive to flush the data in the write cache when the number of commands stored in the first memory reaches a predetermined threshold.

5 9. The storage array of claim 5, wherein the first memory is non-volatile.

10. A method for rebuilding the storage media of a drive, wherein the drive is in communication with a write cache that may be selectively enabled, the method comprising:

enabling the write cache for the drive;

transmitting one or more commands to the drive;

5 writing the one or more commands to a journal; and

forcing the drive to flush the data in the write cache to the storage media.

11. The method for rebuilding the storage media of a drive of claim 10, further comprising the step of clearing the journal.

12. The method for rebuilding the storage media of a drive of claim 11, further comprising the step of disabling the write cache for the drive following the successful rebuild of the media of the drive.

13. The method for rebuilding media in a drive of claim 10, further comprising the steps of:

providing a count of commands sent to the drive; and

wherein the step of forcing the drive to flush the data in the write cache is performed once the count of commands sent to the drive reaches a predetermined value.

14. The method of claim 13, further comprising the step of clearing the journal following the successful flushing of the data in the write cache.

15. The method claim 13, further comprising the step of disabling the write cache following the successful rebuild of the media of the drive.

16. The method of claim 10, further comprising the step of clearing the journal after the drive flushes all data in the write cache and transmits a message indicating that the cached data was written to the media.

5 17. The method of claim 10, where the journal is comprised of non-volatile memory associated with a drive controller.

18. A drive controller operable to communicate with a drive through a communications channel, comprising:

a first memory for recording commands transmitted from the drive controller to the drive during the period that the drive is being rebuilt;

5 a second memory for storing a count of the commands recorded in the first memory;

wherein, during the period that the drive is being rebuilt, the drive controller is operable to enable the write cache of the drive and cause the drive to flush the data in the write cache of the drive when the count of the commands reaches a predetermined threshold.

10 19. The drive controller of claim 18, wherein the drive controller is operable to disable the write cache of the drive following the successful rebuild of the drive.

20. The drive controller of claim 19, wherein the first memory comprises non-volatile memory.